

PHYSICS

New Theory of Relativity Announced by Yale Scientist

Einstein's Famous Theory Broadened to Make It Applicable to Happenings Within the Atom

A NEW theory of relativity, presented as a more effective mathematical tool than the famous Einstein theory, is offered to the world of science by Prof. Leigh Page, widely-known theoretical physicist of Yale University. The new theory is expected to be useful in interpreting the atom. It will have no effect on large scale happenings.

While Prof. Page does not say so, the effect of changing the relativity theory may be likened to proposals for changing the Supreme Court, for relativity has been pictured as the supreme court of science before which all physical laws and theories must be judged.

Prof. Page states in his report (*Physical Review* Feb. 1.):

"The author believes that Einstein's postulate is too restricted to include all possible motions of material particles. In this paper the author will present an alternative theory, and will give reasons for believing that it, rather than Einstein's theory, represents the proper formulation of relativity in an effectively empty world."

Prof. Page broadens Einstein's relativity theory by proving the following result:

"It is shown," he says, in summarizing his work, "that in an effectively empty world Einstein's assumption of an invariant physical interval and an absolute four-dimensional space-time is in contradiction with the underlying principle of the relativity of motion, and therefore either the one or the other must be abandoned."

Basic "Planks"

Which is saying in effect that either one or the other of the two basic "planks," on which the entire structure of Einstein's relativity theory is built, is fundamentally unsound.

As a very broad theory of science which has permeated nearly all fields of physical research, the relativity theory has more than a rough analogy to the Supreme Court of the United States.

As Prof. W. F. G. Swann has ex-

plained regarding the value of Einstein's relativity theory to science:

"The theory of relativity serves as a sort of supreme court to which we may present our proposed theories, our proposed laws of nature, for validation. The theory of relativity cannot, in general, discover the laws for us, but it can act as a useful guide in helping us to our choice."

Prof. Swann points out further the basic conclusion of relativity theory that, in no way, is it possible to detect absolute motion in space. If a theory of science on atoms, gravitation or anything else indicates that such an experiment should be possible, either relativity theory is wrong or the proposed theory is wrong. In this sense the relativity theory is a supreme court where the laws of nature are put to test. While it does not suggest new laws, any more than the Supreme Court of the nation does, the relativity theory, like the Supreme Court, serves as a hurdle which all physical laws must surmount to be accepted into the realm of science.

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New Relativity Theory is Explained By the Author

By PROF. LEIGH PAGE,
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THE "New Relativity," described in the February 1 issue of the *Physical Review*, broadens rather than controverts Einstein's theory. It was suggested by the point of view presented by E. A. Milne of Oxford in his recent book "Relativity, Gravitation and World-Structure," in which the author dispenses with the undefinable concepts of rigid measuring rods and periodic clocks and bases his theory on the concept of light-signals traveling with constant velocity. In its present state of development the new theory is an extension of the special theory promulgated by Einstein in 1905, rather than a modi-



RUSSIAN ROCKET

Shown above is the Soviet rocket which, it is reported, has reached a height of more than 19,000 feet in experimental flights. Engineer A. I. Polyarny, who directs the research, is shown with the device. Time for the ascent was one minute and the descent was by parachute. A meteorograph attached to the rocket recorded both temperature and air pressure. From the latter the maximum altitude was calculated.

fication of his general theory of 1915. Hence its applications are to microscopic rather than to cosmic phenomena.

The inertial systems of Einstein's special theory constitute a group of reference frames each of which has a Euclidean geometry and a constant light-velocity. These reference frames have constant velocities relative to one another. The significant discovery reported in the "New Relativity" is the existence of other reference frames characterized by Euclidean geometries and constant light-velocities, which are accelerated relative to one another. If, then, there are no preferred reference systems in an effectively empty region, the laws of nature must be the same relative to the newly discovered reference frames as they are relative to the inertial systems considered in Einstein's theory. In this way the theory leads to the possibility of types of motion not allowed by the older theories, and offers the hope of acquiring a better understanding of the motions occurring in the atom.

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